

FIG. 1

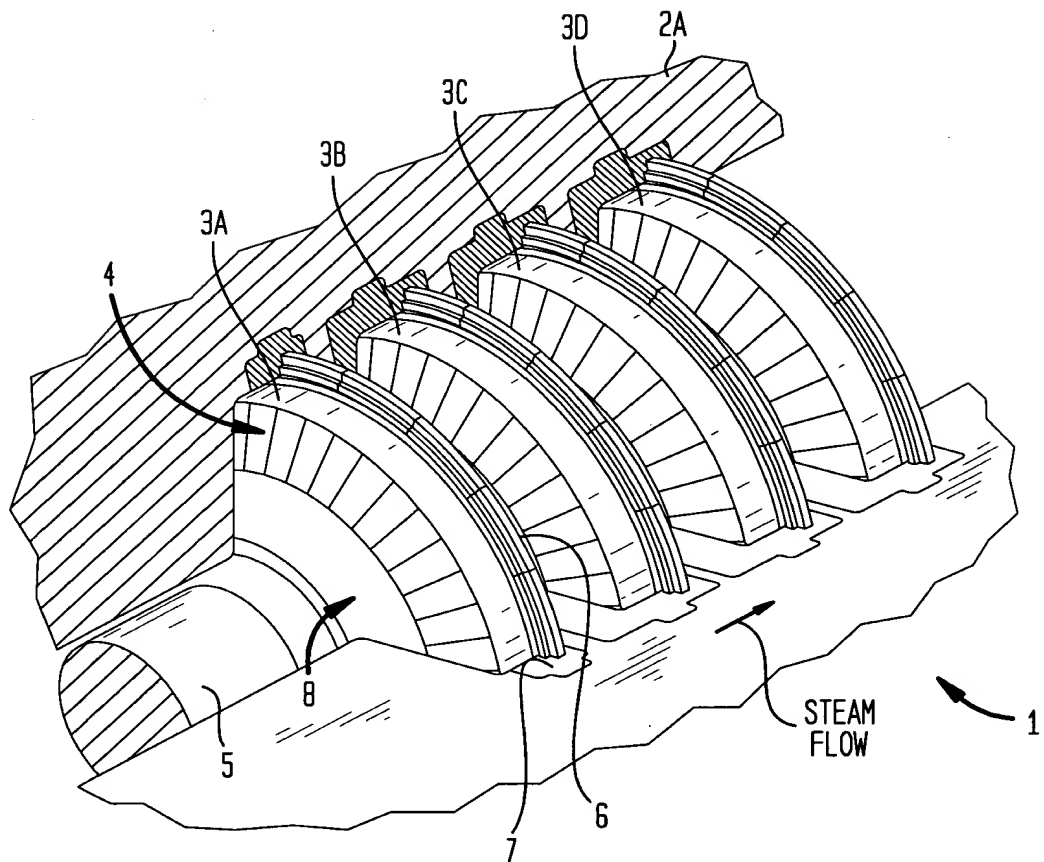


FIG. 2

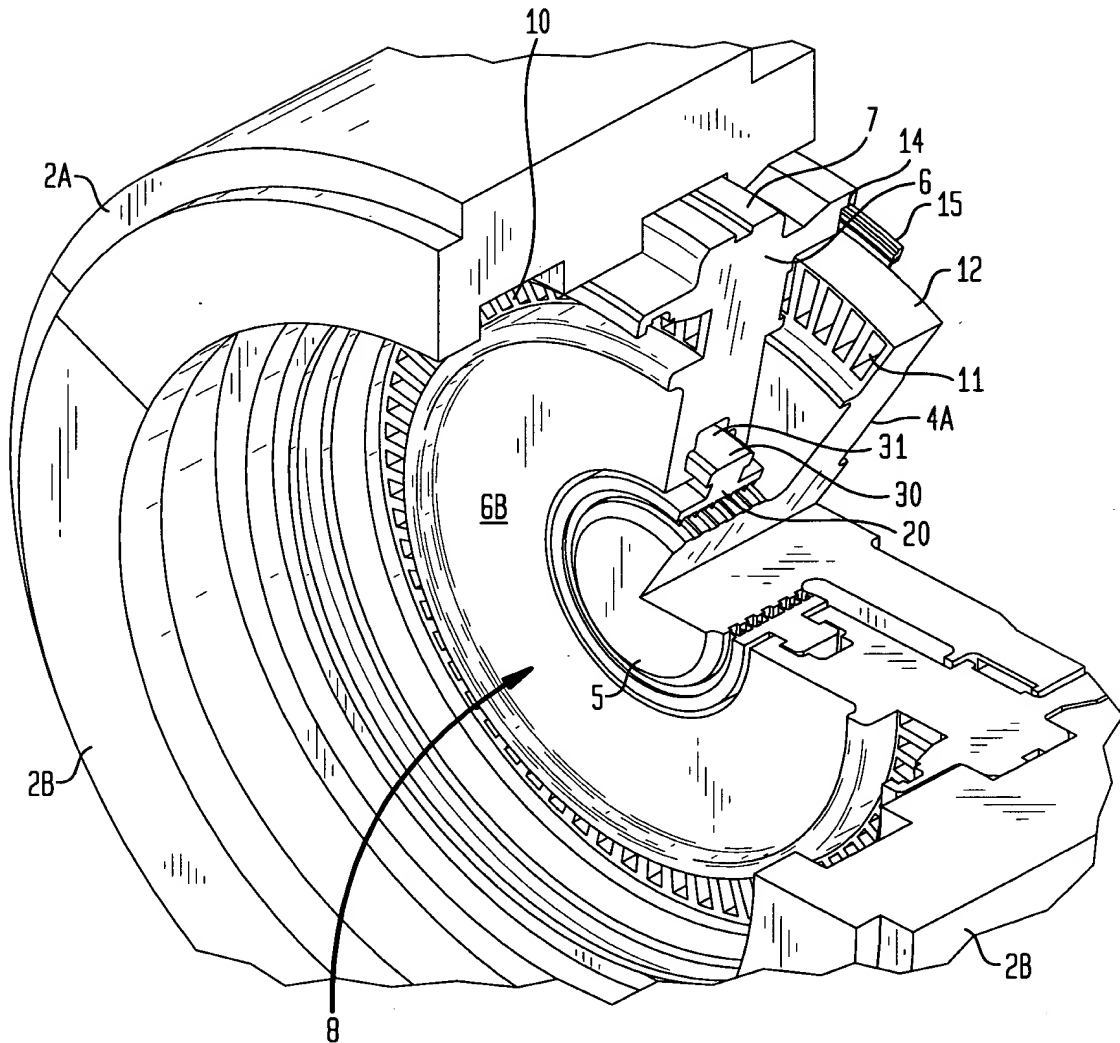


FIG. 2A

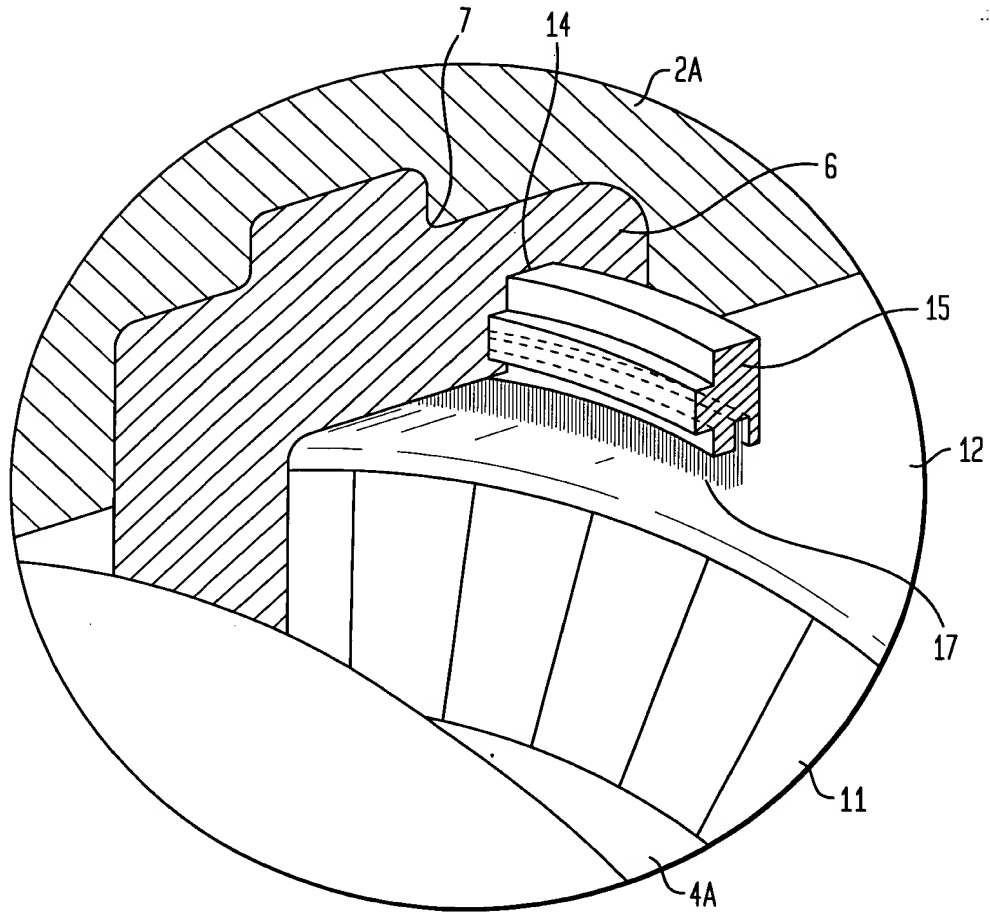
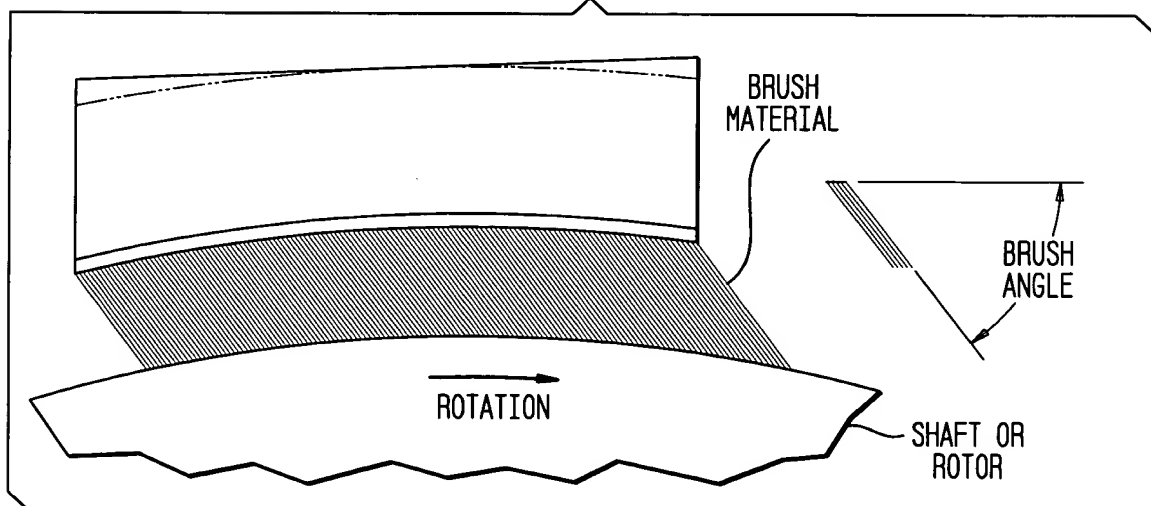
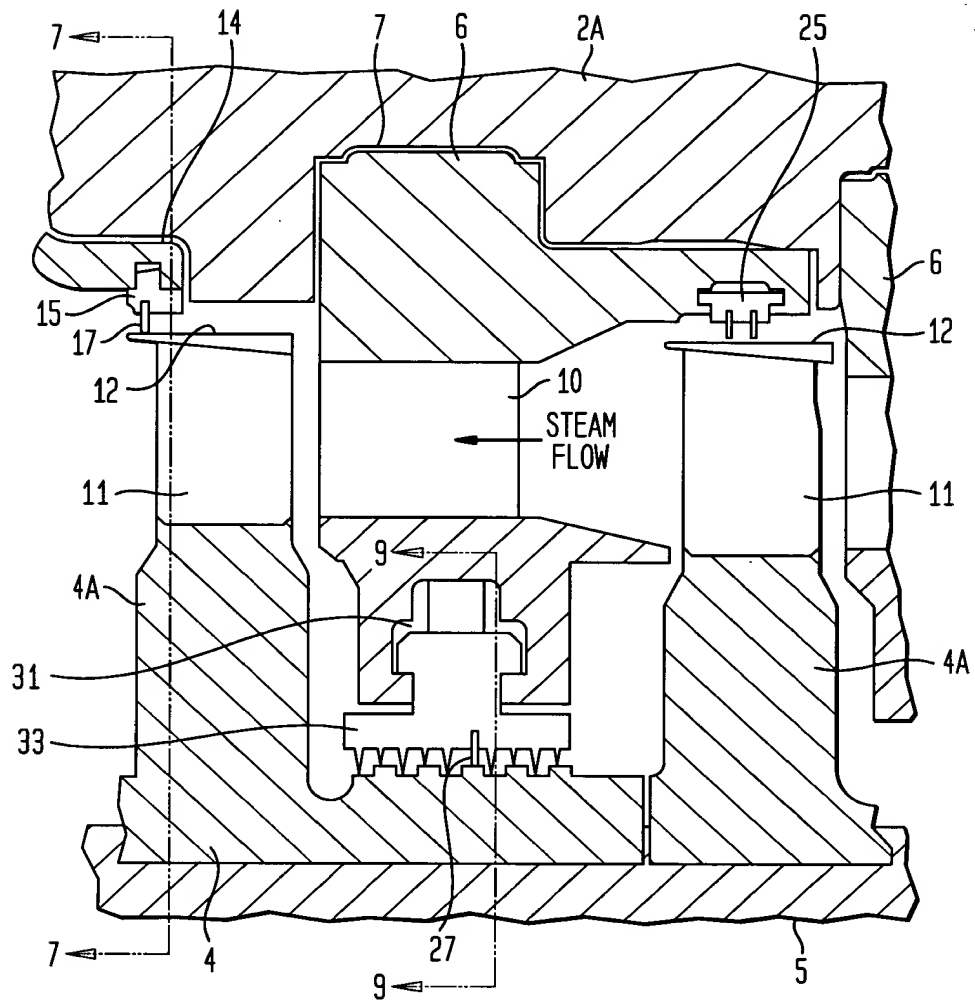


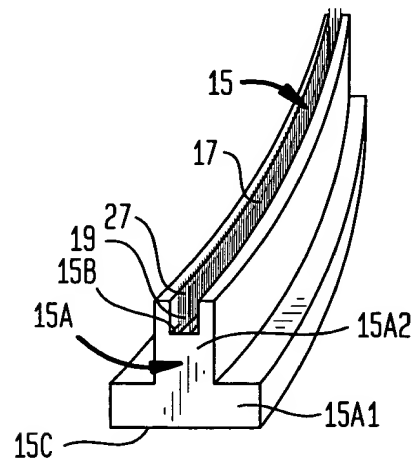
FIG. 2B



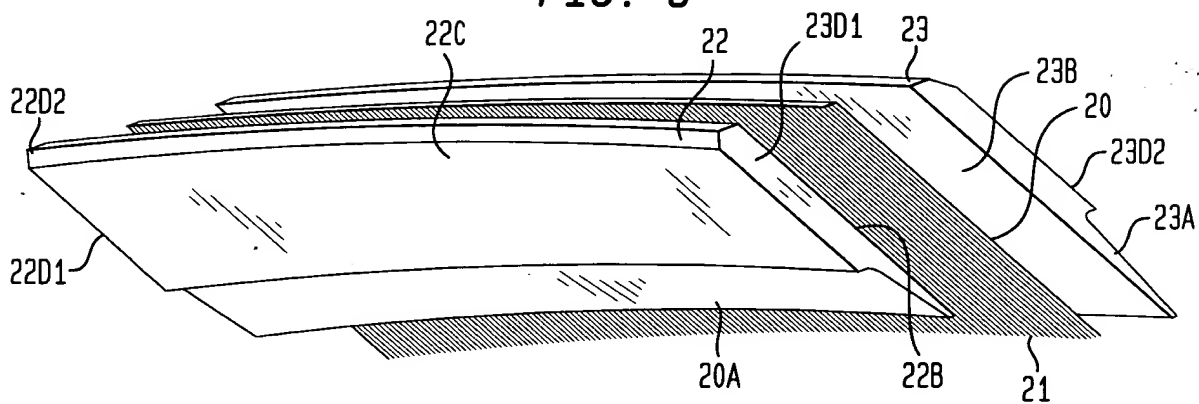
**FIG. 3**



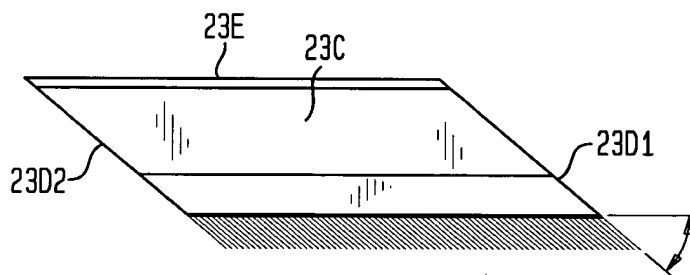
**FIG. 4**



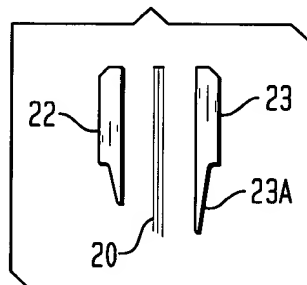
**FIG. 5**



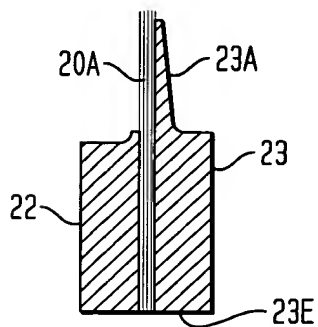
**FIG. 5A**



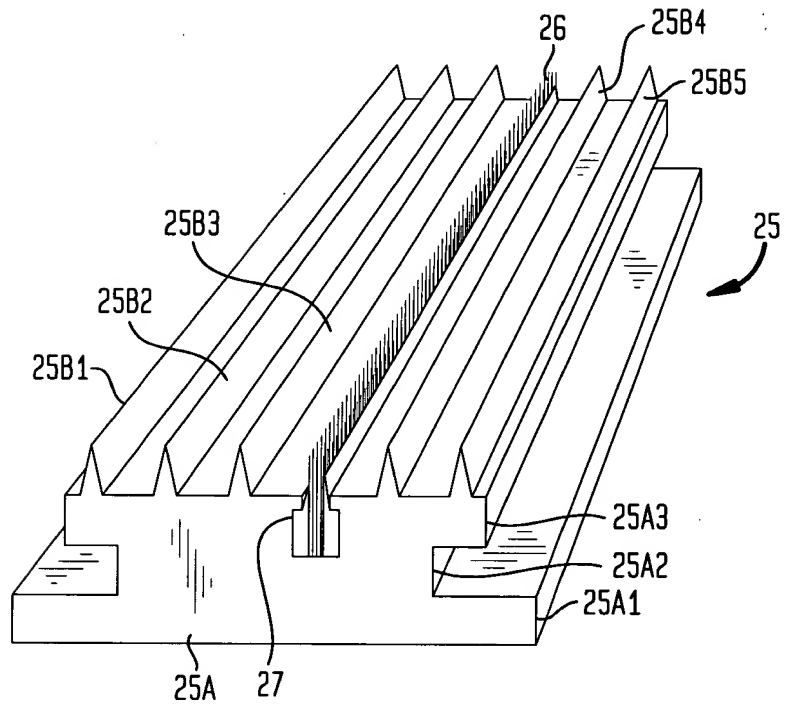
**FIG. 5B**



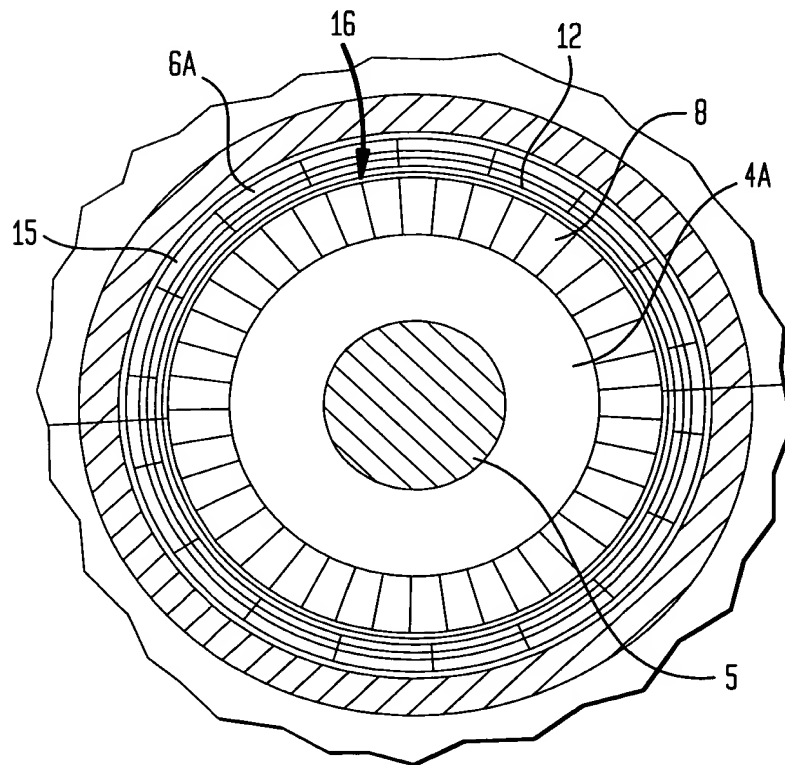
**FIG. 5C**



**FIG. 6**

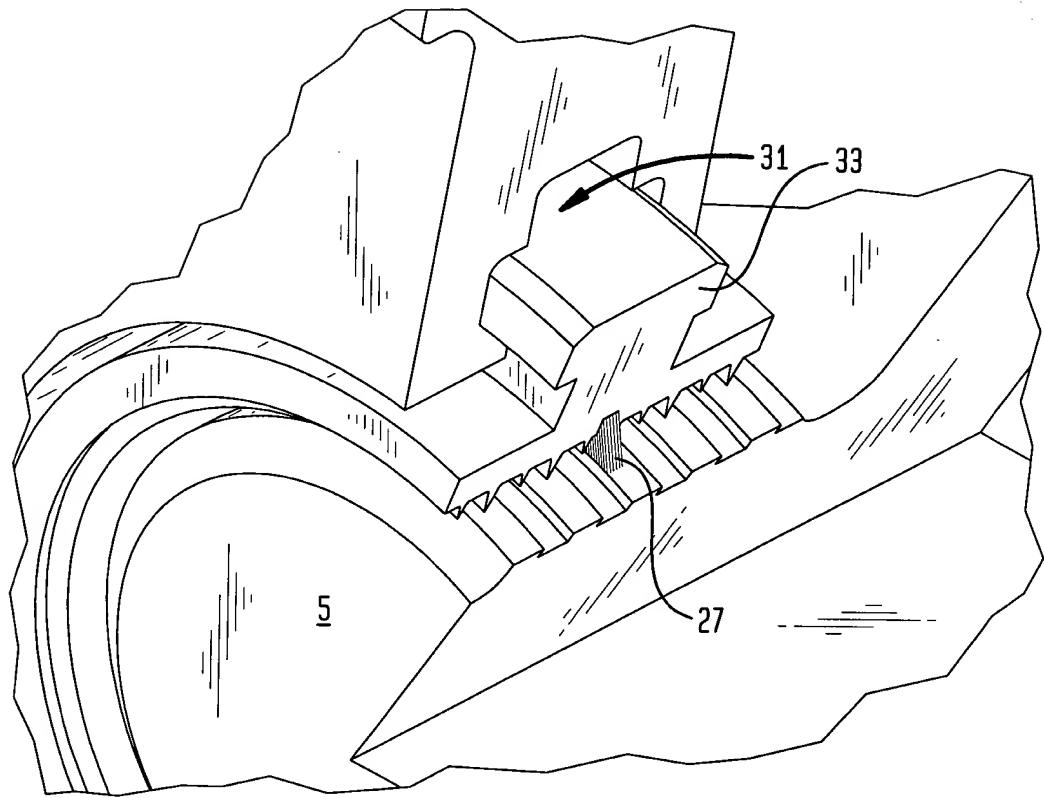


**FIG. 7**

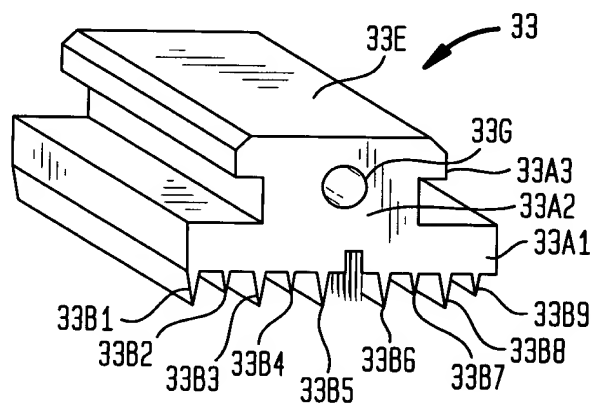


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**FIG. 8**

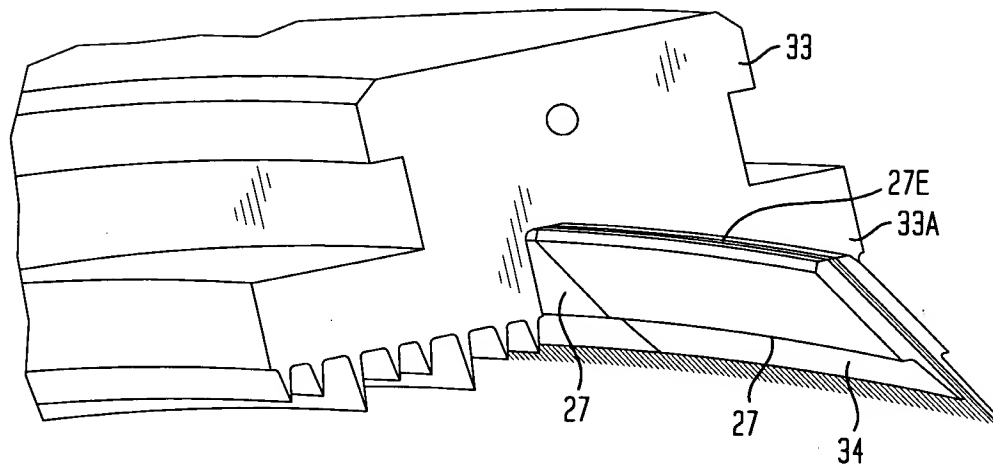


**FIG. 8A**



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**FIG. 8B**



**FIG. 8C**

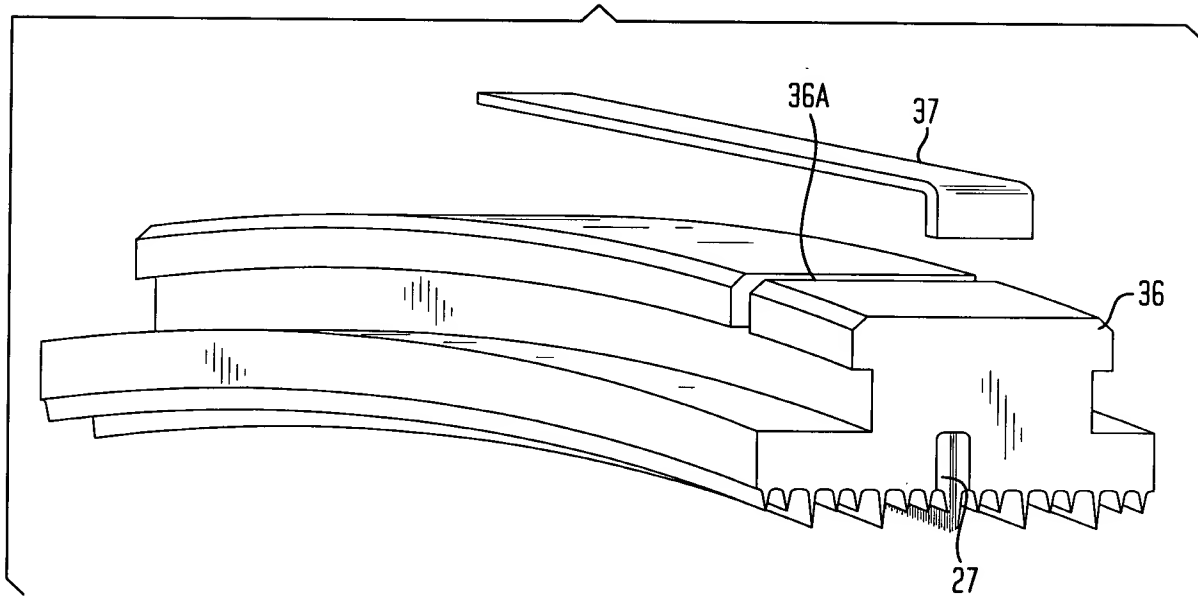
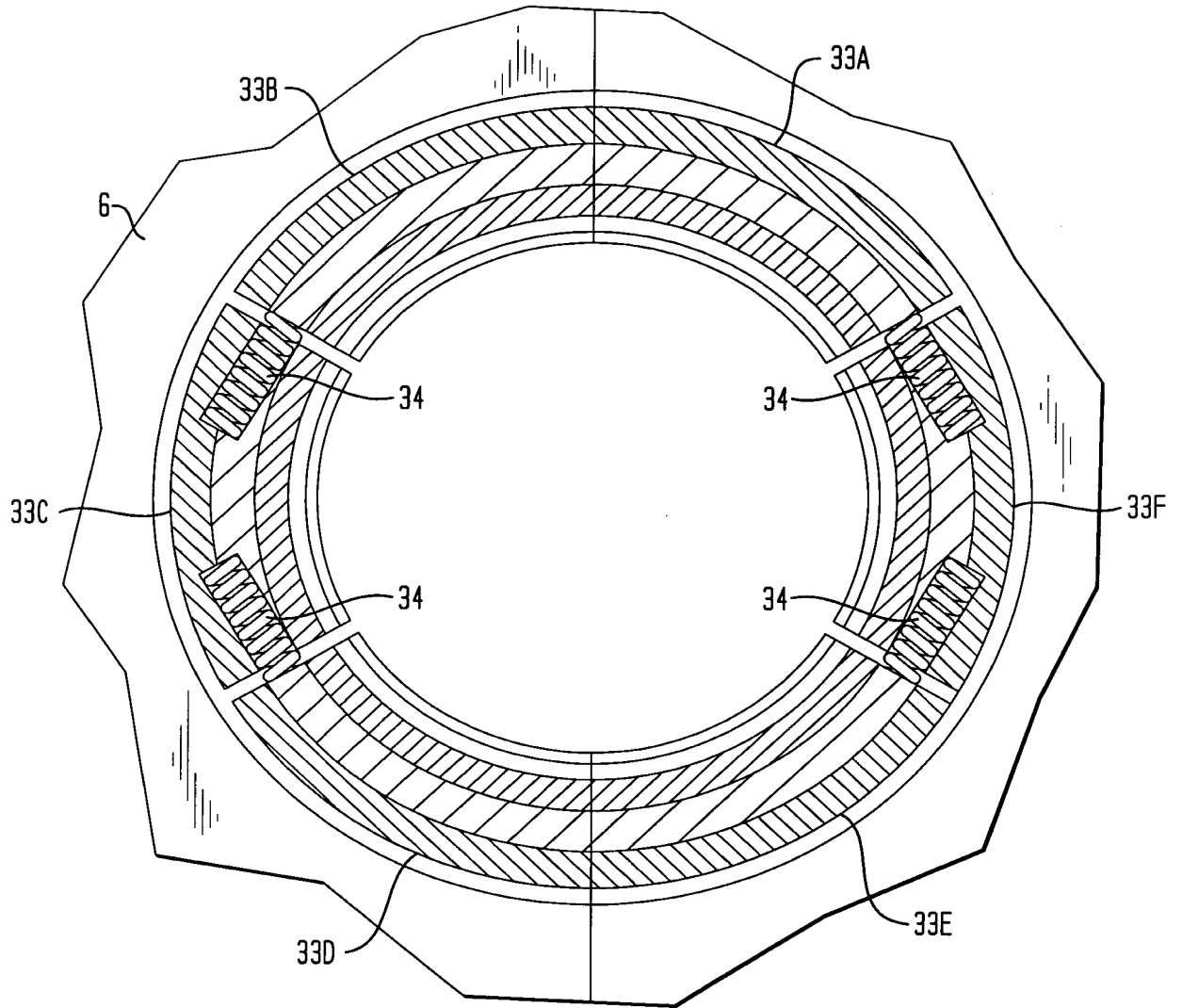


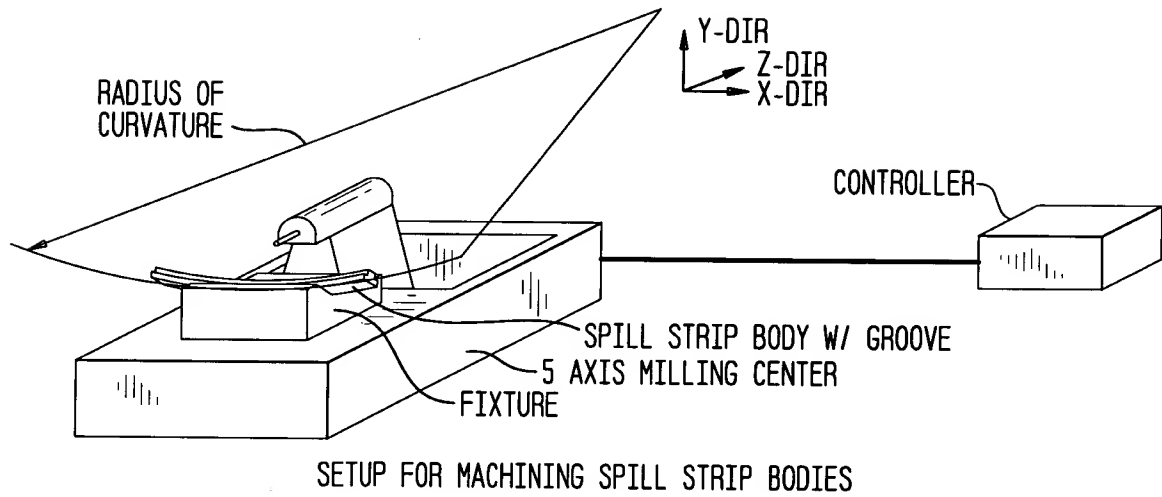


FIG. 9

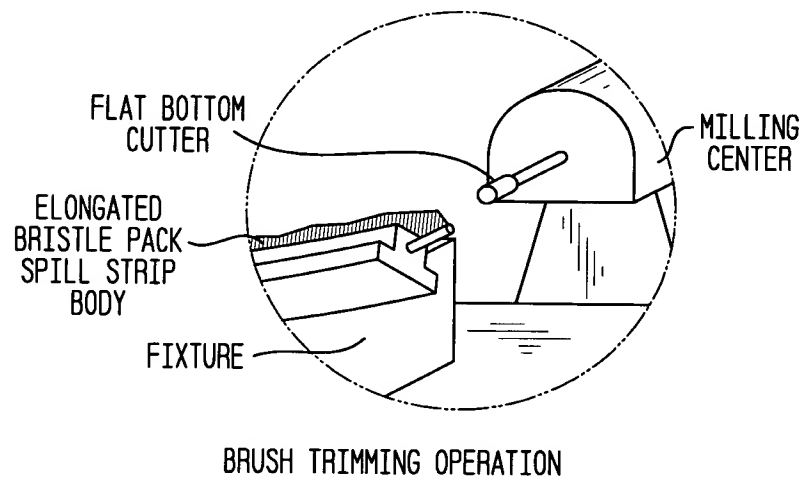


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**FIG. 9A**

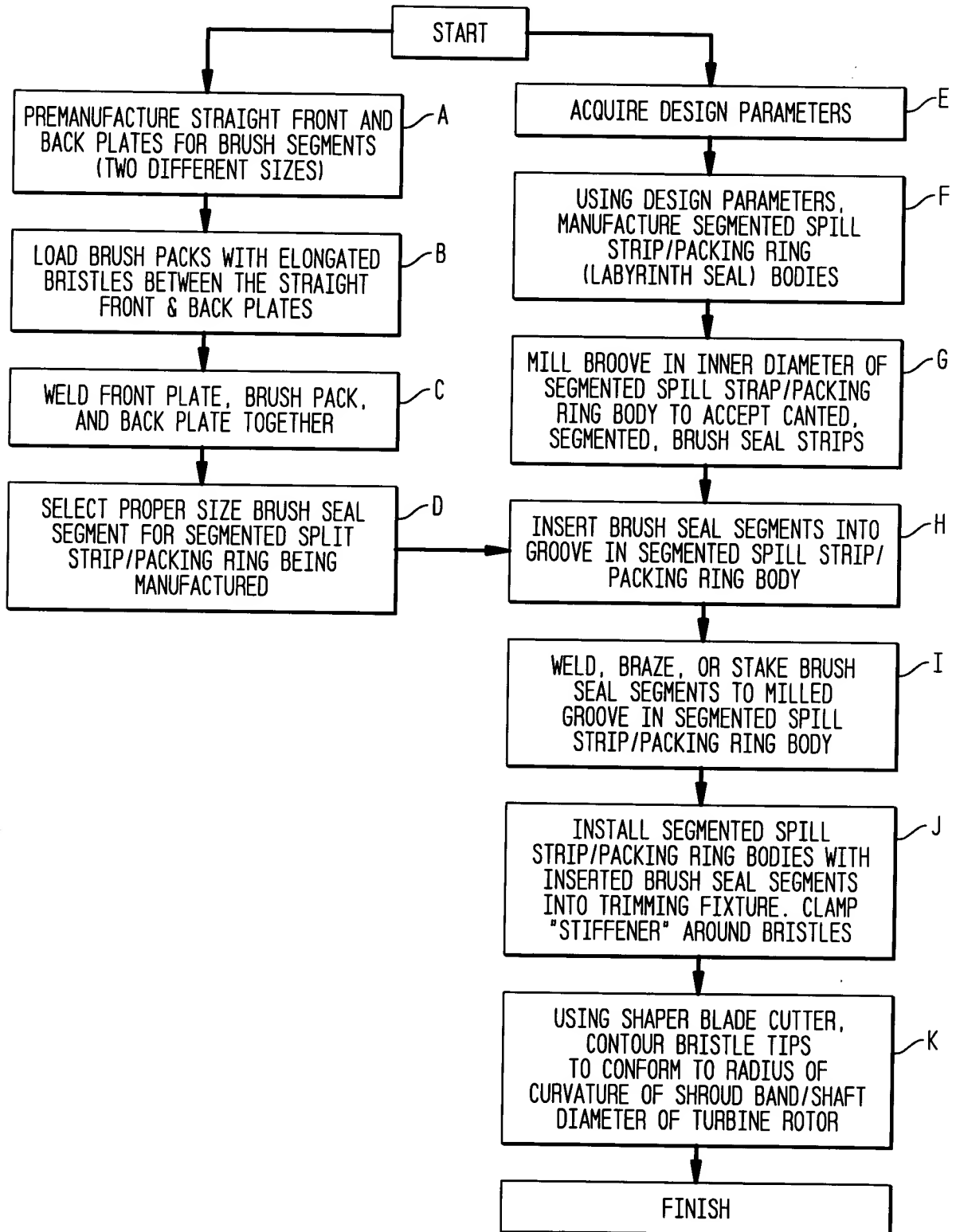


**FIG. 9B**



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**FIG. 10**  
MANUFACTURING FLOWCHART



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FIG. 11A

## SEGMENTED BRUSH SEAL DROP STUDY

BASED ON CURVED SEGMENTS

&gt;&gt;&gt;

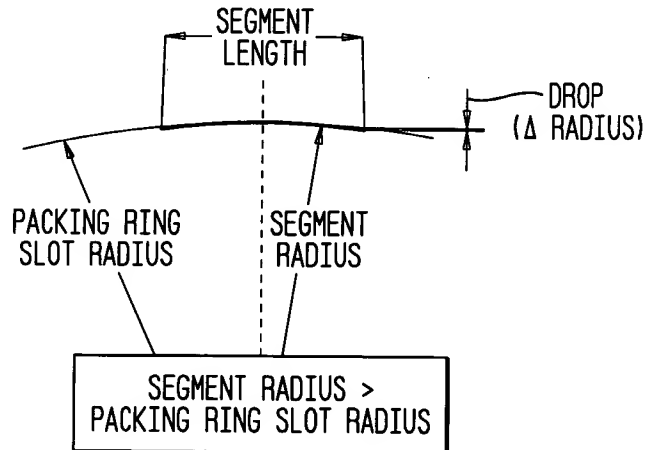
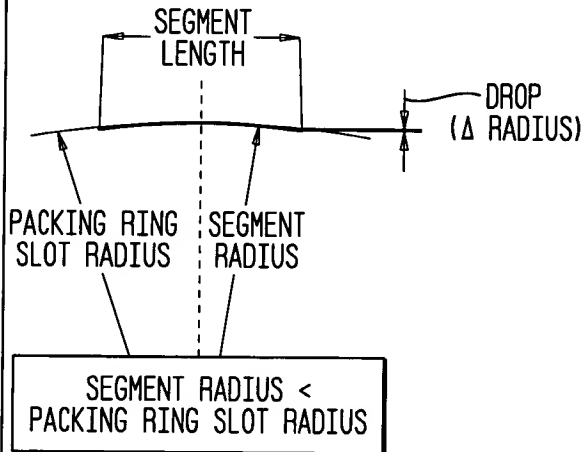
BASED ON CURVED SEGMENTS

15.500

SEGMENT LENGTH (IN INCHES)

PACKING  
RING SLOT  
DIAMETER  
(IN INCHES)

	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
20	0.0006	0.0011	0.0025	0.0044	0.0069	0.0100	0.0178	0.0279	0.0404	0.0552	0.0725
21	0.0005	0.0010	0.0022	0.0038	0.0060	0.0087	0.0154	0.0242	0.0349	0.0478	0.0627
22	0.0005	0.0008	0.0019	0.0033	0.0052	0.0074	0.0133	0.0208	0.0300	0.0410	0.0538
23	0.0004	0.0007	0.0016	0.0028	0.0044	0.0063	0.0113	0.0177	0.0255	0.0348	0.0457
24	0.0003	0.0006	0.0013	0.0024	0.0037	0.0053	0.0094	0.0148	0.0214	0.0292	0.0383
25	0.0003	0.0005	0.0011	0.0019	0.0030	0.0044	0.0078	0.0122	0.0176	0.0240	0.0315
26	0.0002	0.0004	0.0009	0.0016	0.0024	0.0035	0.0062	0.0098	0.0141	0.0192	0.0252
27	0.0002	0.0003	0.0007	0.0012	0.0019	0.0027	0.0048	0.0075	0.0108	0.0148	0.0194
28	0.0001	0.0002	0.0005	0.0009	0.0014	0.0019	0.0035	0.0054	0.0078	0.0107	0.0140
29	0.0001	0.0001	0.0003	0.0006	0.0009	0.0013	0.0022	0.0035	0.0050	0.0069	0.0090
30	0.0000	0.0001	0.0002	0.0003	0.0004	0.0006	0.0011	0.0017	0.0024	0.0033	0.0044
31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0001	0.0001	0.0003	0.0004	0.0006	0.0010	0.0016	0.0023	0.0031	0.0041
33	0.0001	0.0001	0.0003	0.0005	0.0008	0.0011	0.0020	0.0031	0.0044	0.0060	0.0079
34	0.0001	0.0002	0.0004	0.0007	0.0011	0.0016	0.0029	0.0045	0.0064	0.0088	0.0115
35	0.0001	0.0002	0.0005	0.0009	0.0014	0.0021	0.0037	0.0058	0.0083	0.0114	0.0149

DROP  
(Δ RADIUS)  
OF CURVATURE  
(IN INCHES)

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FIG. 11B

## SEGMENTED BRUSH SEAL DROP STUDY

BASED ON CURVED SEGMENTS

&gt;&gt;&gt;

RADIUS OF CURVATURE OF SEGMENT

11.500

SEGMENT LENGTH (IN INCHES)

PACKING  
RING SLOT  
DIAMETER  
(IN INCHES)

	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
20	0.0002	0.0004	0.0009	0.0016	0.0026	0.0037	0.0066	0.0103	0.0149	0.0204	0.0268
21	0.0001	0.0003	0.0006	0.0010	0.0016	0.0023	0.0042	0.0065	0.0094	0.0129	0.0170
22	0.0001	0.0001	0.0003	0.0005	0.0008	0.0011	0.0020	0.0031	0.0045	0.0062	0.0081
23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0001	0.0001	0.0003	0.0005	0.0007	0.0010	0.0018	0.0029	0.0041	0.0056	0.0074
25	0.0001	0.0002	0.0005	0.0009	0.0014	0.0020	0.0035	0.0055	0.0079	0.0108	0.0142
26	0.0002	0.0003	0.0007	0.0013	0.0020	0.0028	0.0050	0.0079	0.0114	0.0156	0.0205
27	0.0002	0.0004	0.0009	0.0016	0.0025	0.0036	0.0065	0.0101	0.0147	0.0200	0.0263
28	0.0003	0.0005	0.0011	0.0019	0.0030	0.0044	0.0078	0.0122	0.0177	0.0241	0.0317
29	0.0003	0.0006	0.0013	0.0023	0.0035	0.0051	0.0090	0.0142	0.0205	0.0279	0.0367
30	0.0004	0.0006	0.0014	0.0025	0.0040	0.0057	0.0102	0.0160	0.0231	0.0315	0.0413
31	0.0004	0.0007	0.0016	0.0028	0.0044	0.0063	0.0113	0.0177	0.0255	0.0348	0.0457
32	0.0004	0.0008	0.0017	0.0031	0.0048	0.0069	0.0123	0.0192	0.0278	0.0379	0.0498
33	0.0005	0.0008	0.0019	0.0033	0.0052	0.0074	0.0132	0.0207	0.0299	0.0409	0.0536
34	0.0005	0.0009	0.0020	0.0035	0.0055	0.0079	0.0141	0.0221	0.0319	0.0436	0.0572
35	0.0005	0.0009	0.0021	0.0037	0.0058	0.0084	0.0150	0.0234	0.0338	0.0462	0.0606

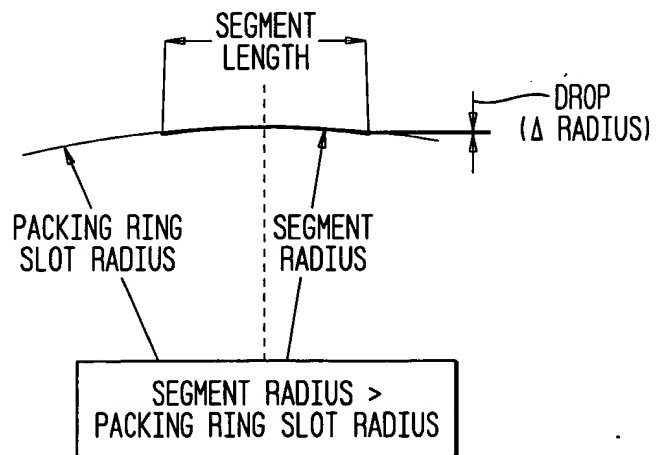
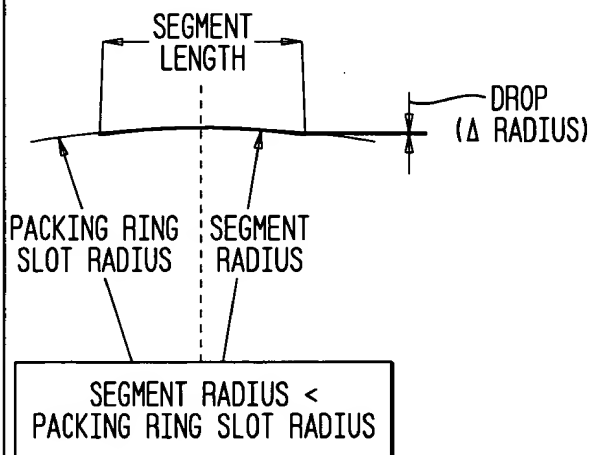
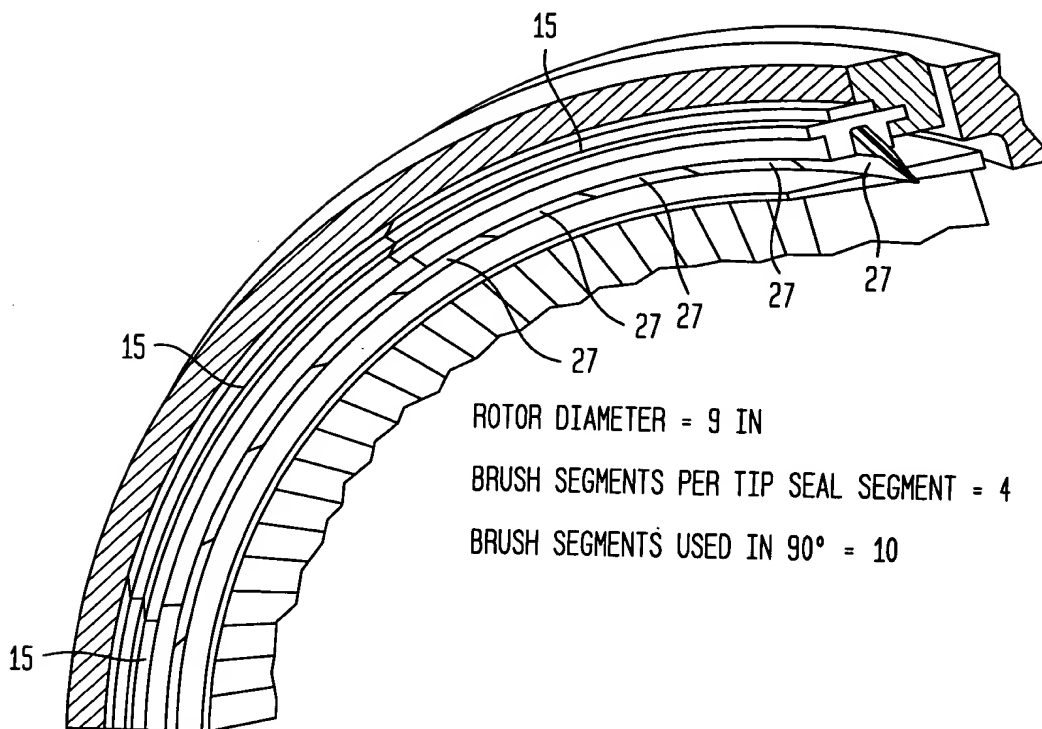
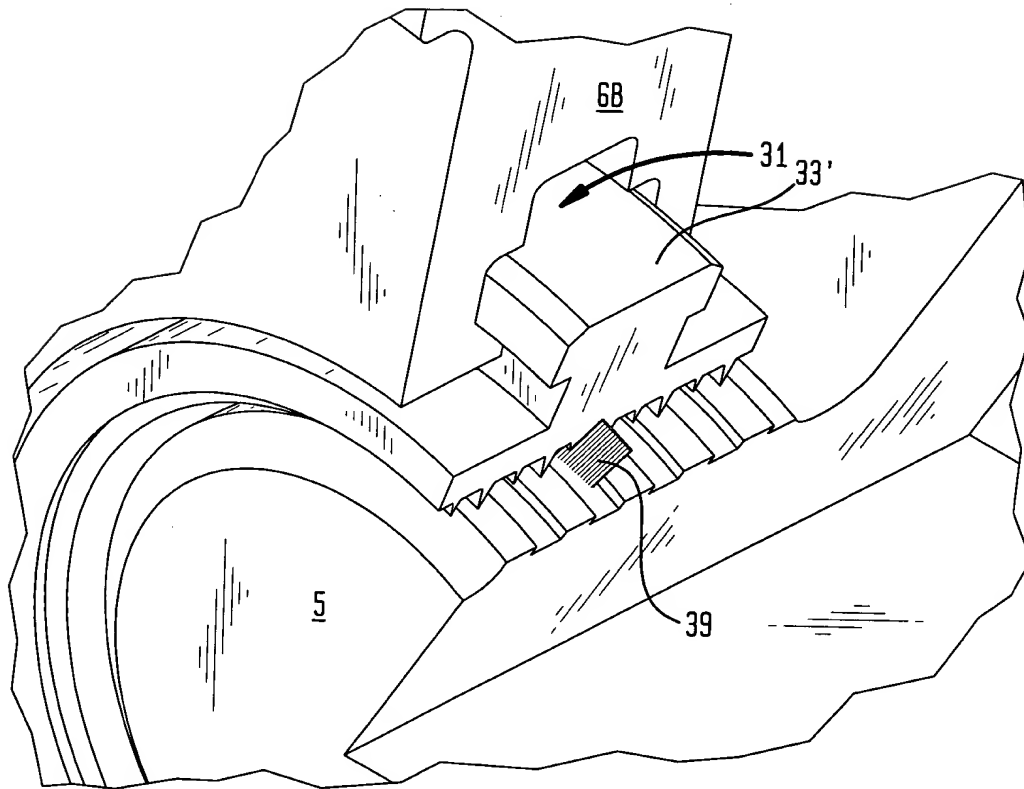
DROP  
(Δ RADIUS)  
OF CURVATURE  
(IN INCHES)

FIG. 12A



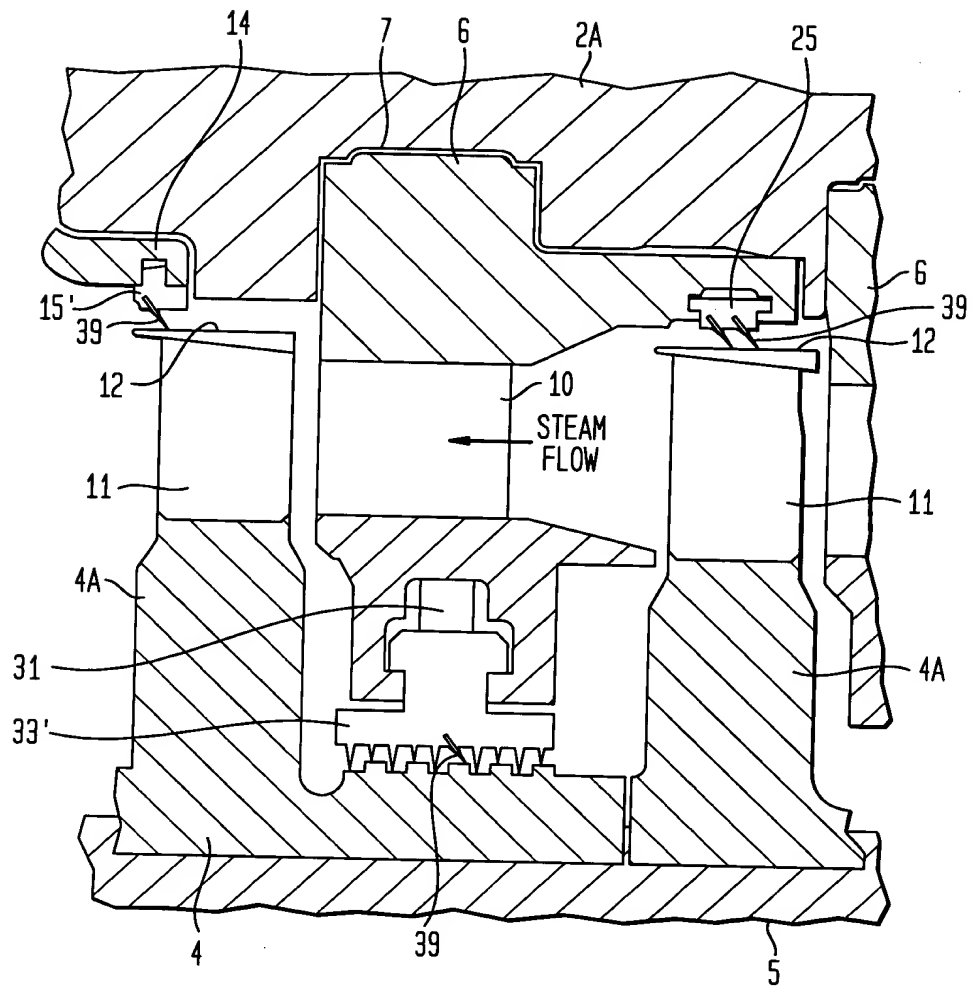


**FIG. 13**





**FIG. 14**



**FIG. 14A**

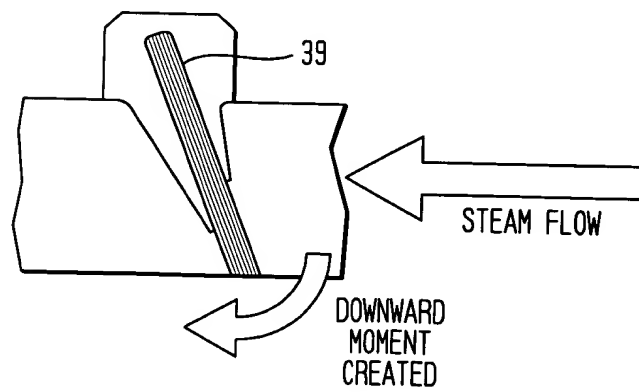
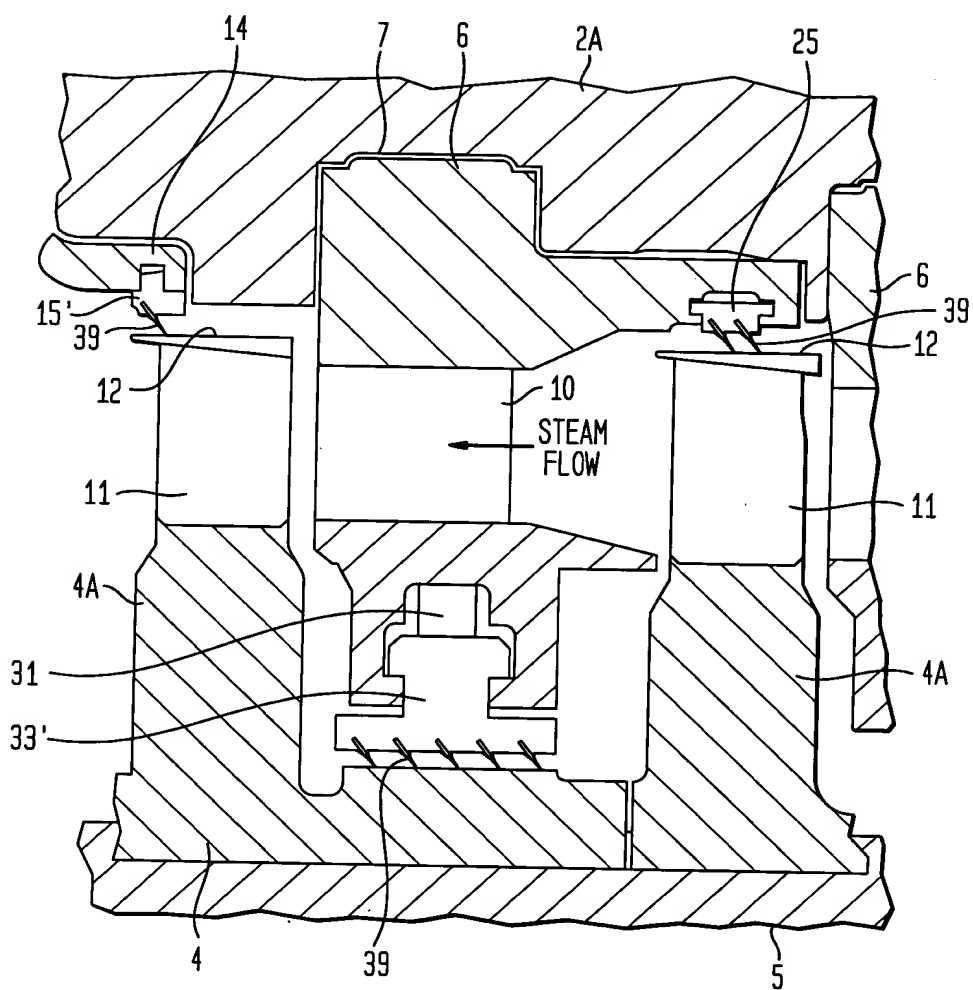
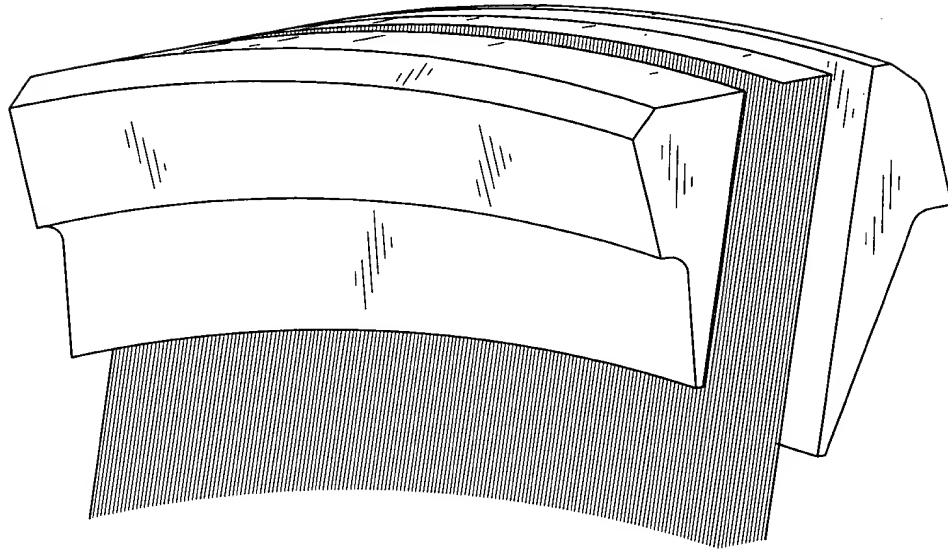


FIG. 15

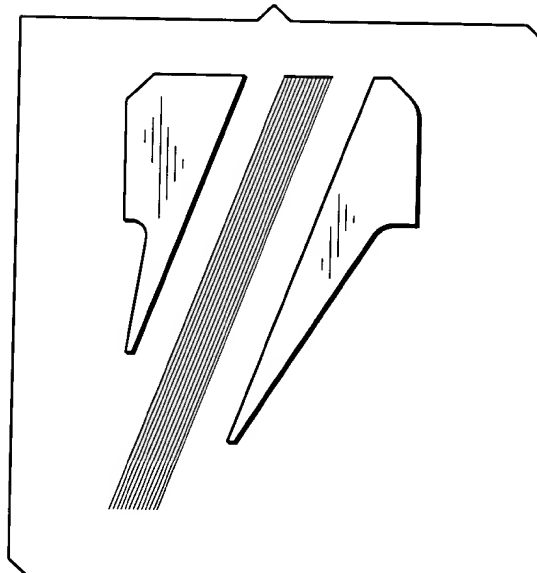


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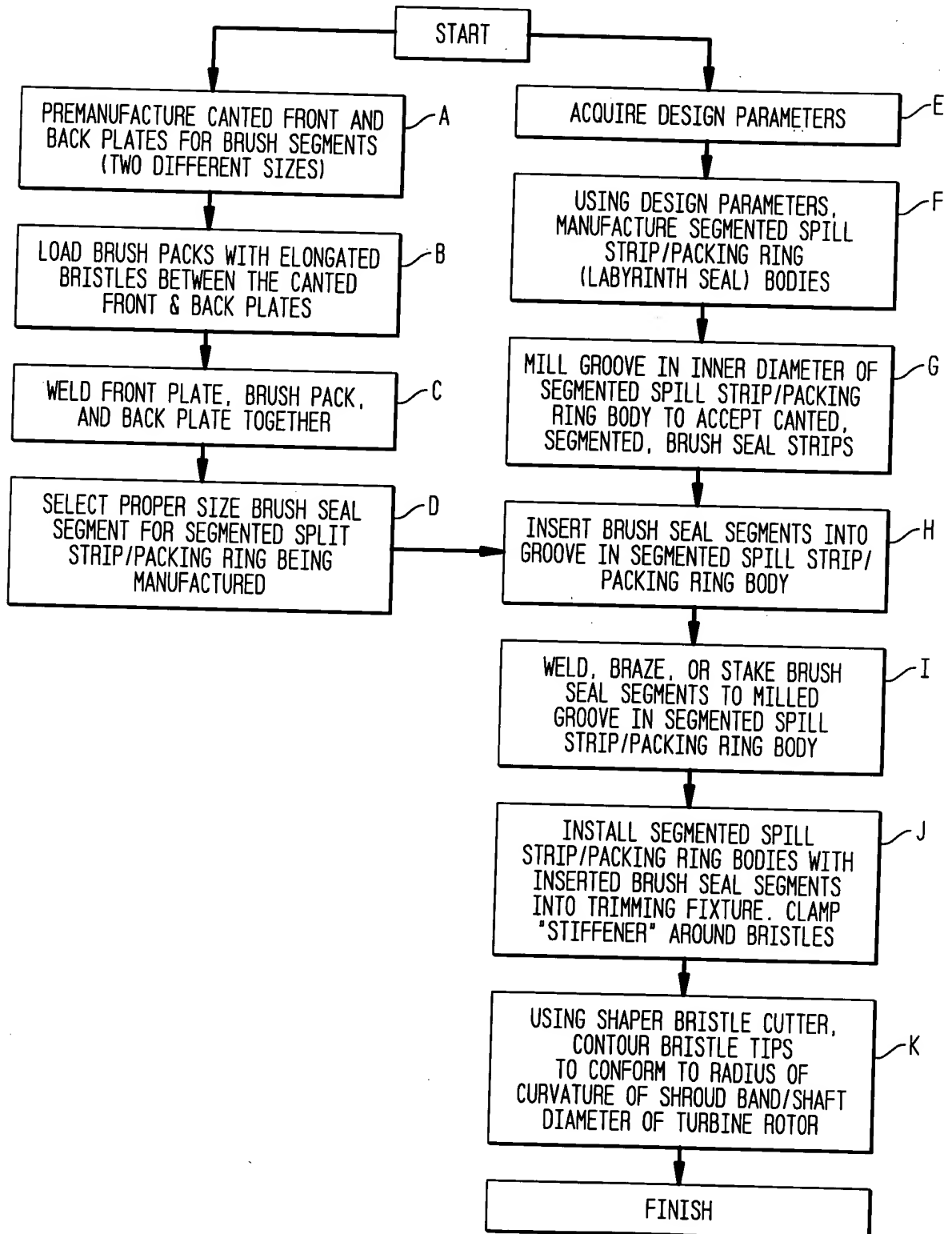
*FIG. 16*



*FIG. 16A*

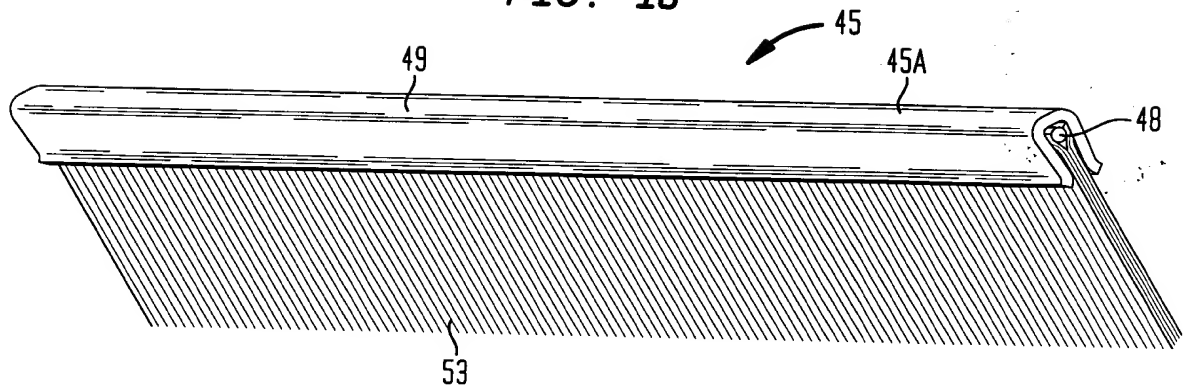


**FIG. 17**  
MANUFACTURING FLOWCHART

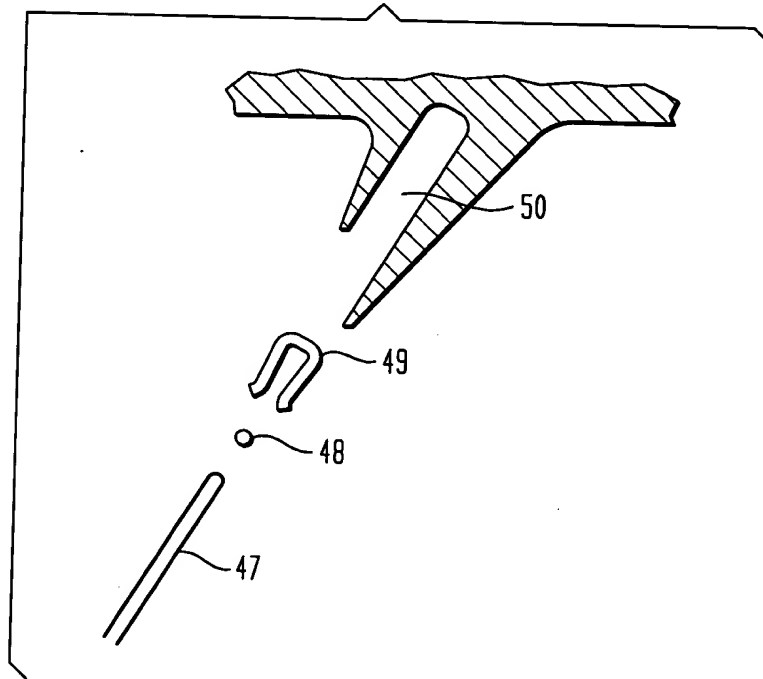


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**FIG. 18**



**FIG. 18A**



**FIG. 18B**

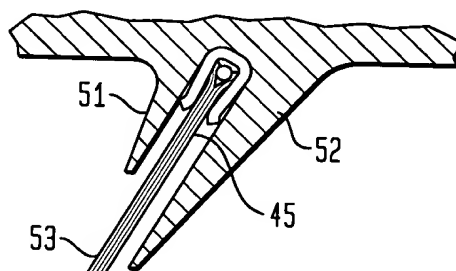
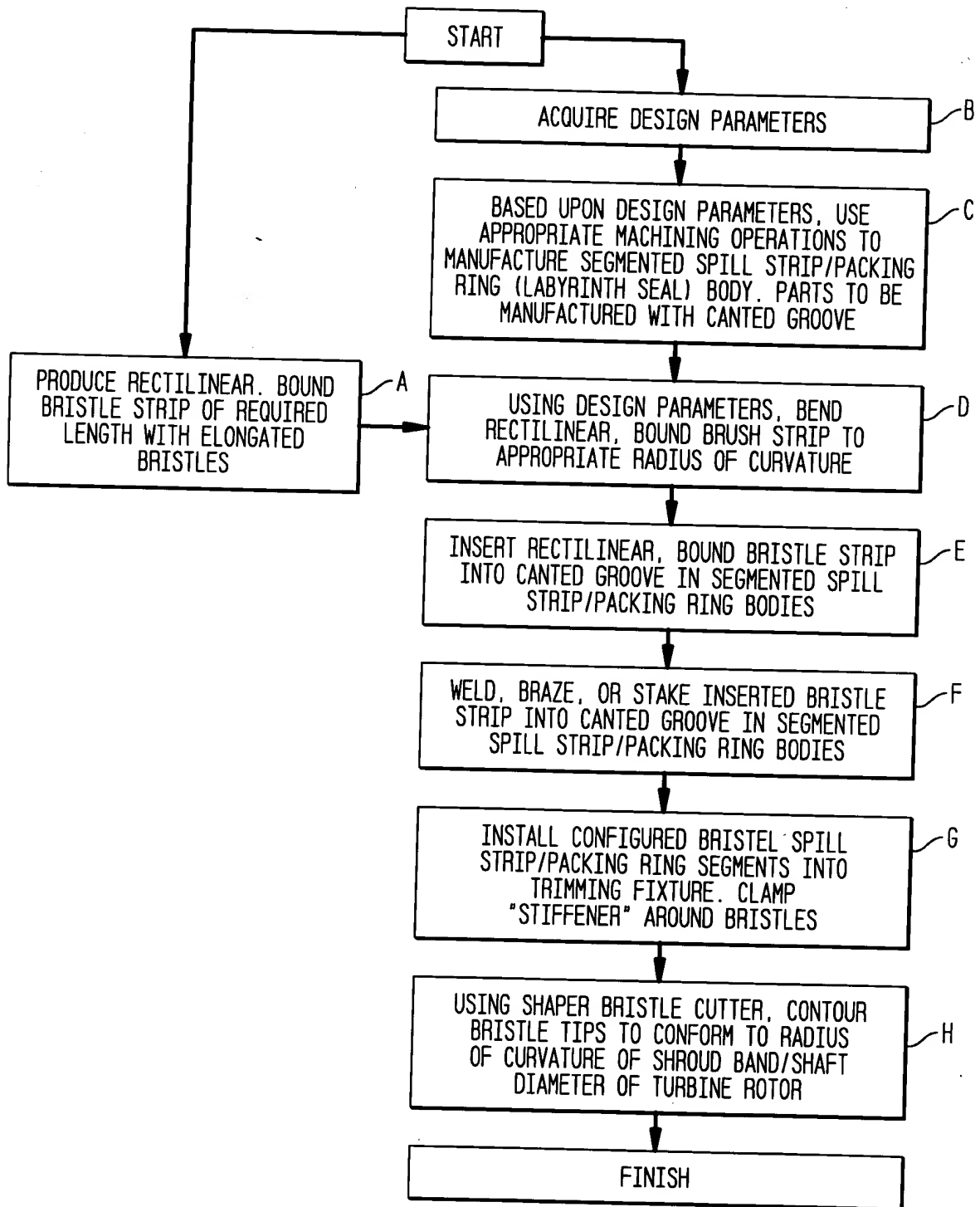
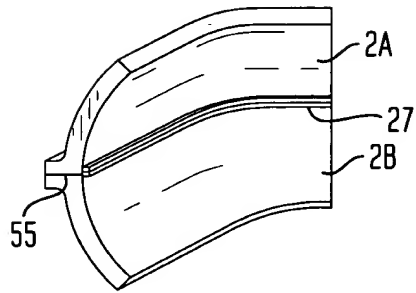


FIG. 19

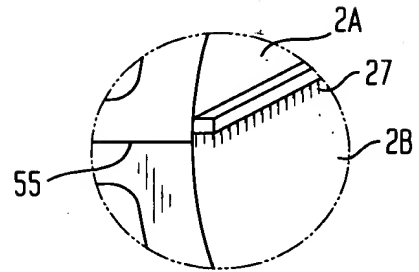
## MANUFACTURING FLOWCHART



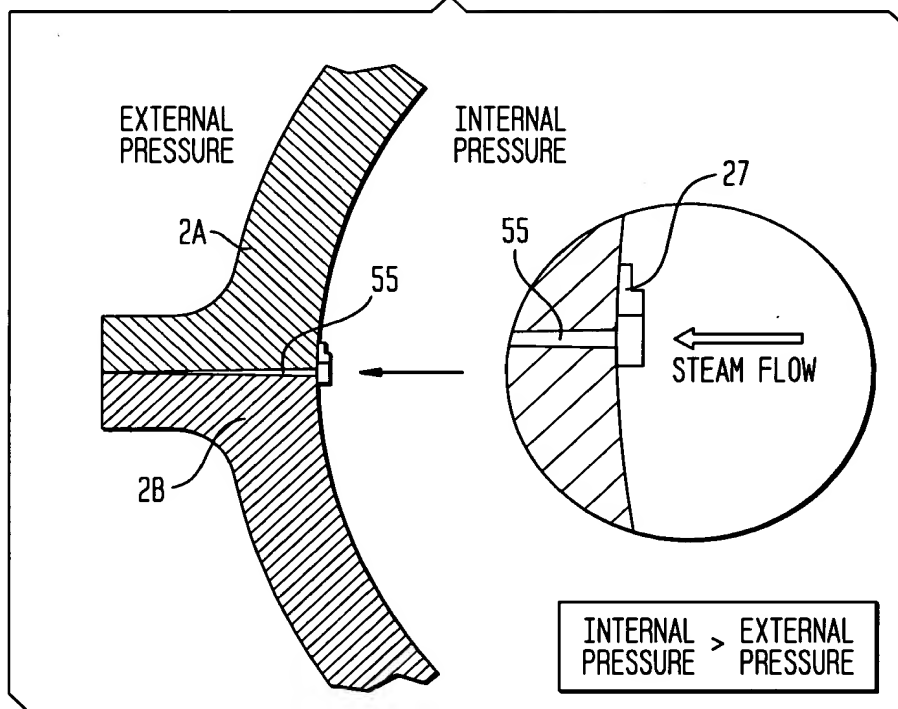
**FIG. 20**



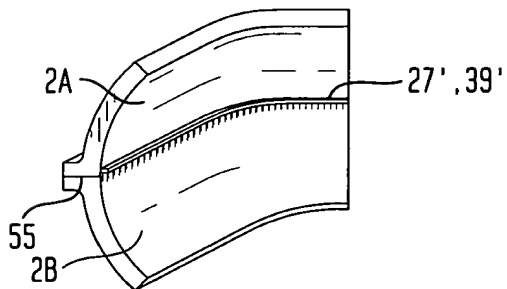
**FIG. 20A**



**FIG. 20B**



**FIG. 21**



**FIG. 21A**

